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ABSTRACT

The premise that using language is a thinking process is central to the computerized diagnostic test being developed by Educational Testing Service (ETS). The test developers are making a significant educational contribution by describing the reciprocal and dynamic relationship between language and thinking. Reading comprehension has been characterized by two general cognitive processes: understanding the structure of a text, and using metacognitive strategies to facilitate understanding of the text. Other cognitive skills involved in reading are concept formation, relating concepts to each other and to a larger framework, problem solving, and critical reflection. Writing also requires skillful use of these same cognitive activities. Successful readers and successful writers are effective precisely because they have developed the thinking abilities which underlie the processes of reading and writing. A project conducted at La Guardia Community College supports the usefulness of ETS's test, which identifies thinking abilities of the reading and writing processes. Courses in reading, writing, and speech have been taught and linked to a critical thinking course. Faculty reaction to this approach has been positive. The results suggest that approaching language as a thinking process is appropriate and effective. (GDC)

VIEWING READING AND WRITING AS THINKING PROCESSES

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I. Introduction

Taken as an aggregate, each of the perspectives on the computerized diagnostic test being developed by the Educational Testing Service express the insight that using language is a thinking process. Most people in the field of education would endorse the general idea that using language is a thinking process. However, there is considerably less agreement regarding the meaning of this idea when applied to concrete learning situations. In my opinion, the individuals developing the ETS diagnostic test are making a significant educational contribution in explicating the reciprocal and dynamic relationship between language and thinking.

II. Reading as a thinking process

In their paper entitled "A Problem Solving Approach to Reading Comprehension," Susan Thomas and Kalle Gerritz characterize purposeful reading as a problem-solving process - not merely deciphering words but actively and systematically making sense of the meaning of the text. This process of creating meaning and making sense involves a variety of thinking activities, and it is this concept of reading as a dynamic thinking process which underlies the ETS diagnostic test.

The authors distinguish two general cognitive processes which are typically present with expert readers and typically absent with novice readers. First, expert readers evidence a comprehensive knowledge of the structure of the text. Second, expert readers display a number of metacognitive strategies which serve to facilitate their understanding of the text's meaning. The authors suggest, and I would agree, that although these cognitive processes are always manifest in a specific reading context, they are abilities which expert readers possess independently of contexts. Thus, when expert readers attempt to make sense of a challenging or unfamiliar reading passage, they are more likely to understand the meaning of the text than novice readers because the expert readers possess more sophisticated thinking abilities which can be applied to the specific reading context. What are these thinking abilities which are so integral to the reading process? Let's take a closer look at the two general cognitive processes identified by the authors - understanding the structure of a text and certain metacognitive strategies.

Understanding the structure of a text involves a number of interrelated thinking abilities, including the following:

1. Forming and applying concepts - Virtually all of the key terms in a reading passage are conceptual entities (for example, "pickleweed.") We develop a progressive understanding of concepts through the dialectical process of generalizing common qualities which define the boundaries of the concepts, and identifying examples of the concept which exhibit these qualities.

2. Relating concepts to each other and to larger conceptual frameworks - The structure of a passage consists of the set of relationships among the various concepts in the passage. The relationships - or forms of thinking - which constitute the structure of a passage include classification, cause and effect, comparison and contrast, analogy, inferring or deducing conclusions based on supporting reasons, and so on.

There also are a variety of thinking abilities which form the metacognitive processes used by expert readers, including the following:

1. Problem-solving - Expert readers approach challenging and unfamiliar passages systematically. They attempt to define the comprehension problem(s) being posed, identify possible interpretations, evaluate alternative interpretations based on contextual clues and come to provisional conclusions which are subject to ongoing revision.

2. Critical reflection - Expert readers think about their making sense efforts in a critical and reflective way. This enables readers to monitor their understanding of the text and to utilize problem solving strategies when they sense that the meaning is not being comprehended.

III. Writing as a thinking process

In his paper "Writing as Decision Making," Doug Fiero characterizes writing as a problem solving process, an activity in which writers are attempting to use the forms of language to give shape to their thinking. As with reading, this process of creating meaning and making sense involves a variety of thinking activities. This concept of writing as a dynamic, thinking process is embodied in the ETS diagnostic test, as the author suggests in the following passage:

> "The 'Claude' sequence uses computer feedback messages to engage the student in the activity of thinking about what needs to be done, of making rhetorical and logical choices not abstractly but in the practical win-or-lose moments that arise when one is writing."

Writing involves the same thinking activities which we identified as part of the reading process-forming and applying concepts, articulating relationships, solving problems and critically reflecting on the process being engaged in. If time permitted, we could examine how these thinking abilities - and others besides - are actually instantiated in the writing process. However, the important point is that successful readers and successful writers are effective precisely because they have developed the thinking abilities which underlie the processes of reading and writing.

IV. Diagnostic implications

The ETS computerized diagnostic test is designed to identify some of the fundamental thinking abilities which constitute the reading and writing processes. Will this information be useful to educators? Can these thinking abilities be developed in a classroom situation? Will focusing on these thinking abilities have the effect of accelerating the development of reading and writing as measured by commonly accepted standards? Our experiences at LaGuardia Community College suggest an affirmative answer to each of these questions.

During the last three years we have been engaged in a project funded by The National Endowment for the Humanities which is designed to systematically teach and reinforce the basic thinking abilities needed for reading, writing, speaking and academic life in general. The form of the program has been to link reading, writing and speech courses to a thinking course entitled "Critical Thought Skills." The results of this program have been encouraging and suggest that approaching language as a thinking process is an appropriate and effective endeavor. Included below are excerpts from two faculty reports analyzing their participation in the project.

> Dr. Ernest Nieratka - "This report will focus on some of the measured results forthcoming from the pairing of Critical Thinking and Basic Reading III. The section of Basic Reading paired with CTS was 099.68 during the Spring, 1983 term. It was hypothesized in the grant prospectus that the pairing of a Critical Thinking course with a basic skills course,

Reading, may result in some significant measurable improvement in the reading skills level of students. This gain was conjectured because it was felt that there were a number of basic thinking skills necessary to do well in the learning of reading and many students had not acquired these abilities." . . .

"Most significantly perhaps, the students in the experimental section exhibited a more sophisticated approach to reading, indeed viewing it as a problem solving activity. Most typically, students in my other sections, including the control group, view reading in simplistic terms. They believe it is a matter of word calling. If they don't know a word they attempt to sound it out. If this fails, they consult the dictionary. They view reading as cumulatively adding a series of words both known and unknown. If they do not know what something means they are at a loss and have no means to proceed. Essentially, most students have two working reading strategies as a result of eighteen years of education: Sounding-it-out and dictionary search."

"Of course, reading is much more complex. It can be viewed as the reduction of uncertainty or a psycholinguistic guessing game. There are many strategies to process print effectively and efficiently and proficient readers must be constantly monitoring their own strategies to be productive. I attempted to change old reading habits and expand reading strategies in both sections. The Critical Thinkers seemed better able to understand and utilize this information."

"As was pointed out earlier, I consider the measured performance of the paired section to be outstanding and would urge that additional sections of Basic Reading III be paired with Critical Thinking in order to replicate these findings. If future results continue along the lines observed in the Spring 1983 term, Critical Thinking may emerge as one of the most significant forces in the Basic Skills quest for excellence."

Gil Muller - "Students tend to approach Basic Writing III, a developmental course, with apprehension and resignation. They know that they must pass an exit examination at the end of the term in order to pass the course, and that the failure rate traditionally has been high. In fact, the failure rate hovers around 50% each term, and often moves significantly

higher, especially during the spring quarter - the term in which my Basic Writing/Critical Thought Skills cluster was offered."

"Even the best teachers often have difficulty confronting the resignation and lack of enthusiasm expressed by students for Basic Writing III (English 099). Seeking rudimentary norms, instructors pursue error's endless train, hoping that some of their students will be able to write 300-word essays with no more than eight major mistakes at the end of the term - the basic criteria for passing the exit examination and passing the course. Basic Writing thus becomes a numbers game: Cut down on comma splices, avoid fragments, smooth out subject-verb agreement, and so forth. The inculcation of such syntactic and grammatical skills is, of course, a desirable and necessary strategy for a teacher to pursue in any developmental writing course. At the same time, exclusive concentration on sentence, paragraph, and essay mechanics does not contribute to the maturing sense of self, the growing critical awareness, or the intellectual commitment to ideas in this world that "remedial" students need most."

"Against this background of diminished expectations, Professor Chaffee and I attempted to bring students in our six-hour cluster into touch with themselves, with strengths and abilities that they didn't think they possessed, and with the world of ideas that characterizes - or should characterize - academic life in the classroom. Building incrementally upon an integrated set of affective and cognitive skills, we succeeded in moving most of our students in ten short weeks from a point of undisciplined and largely uncritical thought about themselves and their world to a point where they could exercise critical thought skills in a properly structured manner. Fourteen out of sixteen students enrolled in our cluster passed the exit examination - an unusually high percentage, and one which I think can be attributed to the success of the cluster experience."

V. Summary

In this paper I have tried to provide evidence for the following points:

1. Reading and writing are thinking processes.

2. By identifying and teaching these thinking processes we will accelerate the development of reading and writing abilities as measured by commonly accepted standards.

3. The ETS computerized diagnostic test is a powerful instrument for identifying and evaluating these thinking abilities.

If this perspective is accurate, then the ETS project should be a significant force in contributing to effective learning experiences.